

## Assembling Payments for Ecosystem Services in Wales

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## Agri-Environmental Governance as an Assemblage

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## **Assembling Payments for Ecosystem Services in Wales**

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### ***Abstract***

*This chapter uses an assemblage approach to evaluate the development of ‘payments for ecosystem services’ in Wales, via transformations of agri-environmental governance over the last ten years. Whilst the adoption of PES has led to a shift in governance style and State responsibilities that echoes broader trends in neoliberalisation, we reject readings of hybrid neoliberalism following, instead, Tanya Murray Li’s (2006) practices of assemblage to unpick the complex institutional arrangements emerging. Using an assemblage approach*

*enables us to assess how different actors are mobilising and aligning around the PES approach to advance their own agendas. Following the practices used to authorise and render their concerns technical then shows us how and why some actors are being marginalised in this process, particularly as failures emerge and re-assembling is undertaken. Finally, we offer insights on how the State continues to maintain power whilst entering into new relations with other actors, advancing a more experimental mode of governance. The empirical material is based on three qualitative case studies, including pan-Wales agri-environment schemes as well as the ‘Pumlumon Project’ in Mid-Wales and the ‘Ecosystem Enterprise Partnership - Ecobank’ in South-Wales.*

**Key words:** *Payments for ecosystem services, assemblage, agri-environmental governance, power, Wales*

## **Introduction**

‘Payments for Ecosystem Services’ [PES] has become an increasingly dominant globalised policy narrative to describe a range of initiatives aiming to extend the principles of market governance to the management of ecosystem processes and functions (Gomez-Baggethun et al. 2010; Sullivan 2013). Despite blueprints setting out the desirability of ‘pure’ market transactions (Engel et al. 2008) PES developments exhibit differing degrees of commodification and marketization as they have been adapted to tackle a broad suite of environmental challenges (Muradian et al. 2013), whilst also accommodating diverse socioeconomic and political issues pertinent to varying contexts (Roth and Dressler 2012). Consequently, critical social scientists identifying such developments as indicative of neoliberalisation, have begun to articulate such mutations and accommodations as forms of ‘hybrid neoliberalism’ (Higgins et al. 2014a). However, the coherence and relevance of this

frame has increasingly been questioned (Hodge and Adams 2012; Wolf 2014). In this chapter we evaluate PES developments in Wales (UK) over the last ten years to offer an alternate, assemblage-inspired reading.

Here, agri-environmental governance has provided a forum within which PES has been explored as a new policy instrument. This has involved a shift in the rhetoric and rationale of governance, changing the framing of State-led transactions and leading to calls for non-State finances to supplement and expand previous funding mechanisms (Davies 2013a). This has led to the involvement of a more diverse range of stakeholders including NGO's, development agencies, utilities, industry, and individual farm businesses to provide a matrix of 'pan-Wales' and place specific governance arrangements operating alongside one another.

These shifts in discourse and preferred mechanisms of finance have also been accompanied by a change in the framing of farmers and the expectations placed upon them. Availability of public monies have been withdrawn and refined so that farmers have to be more pro-active in the pursuit of payments, and an expectation of clearer deliverables has accompanied this (Wynne-Jones 2013a, 2014). These changes demonstrate a shift in governing style, with government no longer wanting to be seen to impose and dictate, but rather to incentivise desired behaviours and outcomes. This new relationship is intended to move towards market transactions, where the farmer delivers (ecosystem) goods and services that the consumer will then wish to buy (WG 2009). The State is reframed as that consumer, on behalf of its citizens, but equally an array of additional actors (as noted above) have also stepped forward to develop new arrangements (WG 2016a).

Nevertheless, developments continue to fall short of full marketization (c.f. Boisvert et al. 2013; Potter and Wolf 2014). In earlier evaluations (Wynne-Jones 2012, 2013), this has

prompted recourse to a frame of hybrid neoliberalism and readings of neoliberal governmentality to understand the otherwise apparently contradictory moves of the State and the new subjectivities nurtured amongst governed populations. This chapter takes a different – assemblage inspired – approach responding to recent critiques of hybridity and neoliberalism as analytical categories, which will be outlined in the next section. We also seek to respond to three key distinctions emerging in our case material that set it apart from earlier discussions.

Firstly, the actors and institutions now involved in Welsh agri-environmental reforms are multiple and come together in increasingly complex forms which may mimic and learn from other arrangements but appear as context – and often place – specific groupings. This is not simply a balancing of public and private, state and market, but much more multifaceted and diffuse (see also Hodge and Adams 2012); raising questions around the levels of control that the State continues to assert and the appropriate scale of governance.

Secondly, the label of PES is being applied here to an array of notably different projects, serving diverse ends and operating through a range of governance mechanisms; meaning that multiple iterations and incarnations of ‘PES’ exist alongside each other (see also Potter and Wolf 2014). Sometimes these are operating at different spatial scales (national or place specific), but often act concurrently within the same territorial units (e.g. a catchment, region or farm).

Thirdly, the coherence and ultimate trajectory of what we are witnessing needs to be considered carefully in order to capture the reactive and contingent nature of decision making throughout. Thinking in terms of policy mobility (McCann and Ward 2012; Prince 2017), to assess the current form of PES in Wales without attention to the continuing negotiations,

amendments and unexpected opportunities arising, would be to erase critical political moments. Imagining PES development as having followed a linear and singular trajectory would be an unhelpful simplification. As Nicholas Rose observes:

*“Programmes and technologies of government...are assemblages which may have a rationality, but this is not one of a coherence of origin or singular essence... To analyse...is not to seek for a hidden unity beyond this complex diversity... It is to reveal the historicity and the contingency of the truths that have come to define the limits of our contemporary ways of understanding...”* (Rose 1999, 276-77)

This chapter follows Rose’s prompt, to read the emergence of PES in Wales as a form of assemblage in order to unravel the complex networks, reconfigurations and antagonisms involved.

### **Assembling Governance**

Understanding policy transfer as processes of assemblage allows us to break with totalizing narratives in which ‘neoliberalism’ is universalised and always dominant (McCann and Ward 2012). Assemblage can be understood as both a descriptor of form and the processes that bring such arrangements into being. An assemblage reading allows us to better understand the interplays and coming together of diverse priorities and agencies occurring in place, along with the over-determining and emergent nature of life (Prince 2017). Ontologically, Anderson et al. (2012, 175) argue that assemblage helps us to undo and rethink the categorisation of neoliberalism by attending to *“the processes of composition that produce durable orderings and of the ontic indeterminacy of what might ordinarily be thought of as totalizing practices and processes.”*

Whilst assemblage thinking has been popularised in other areas of policy mobility (see Anderson et al. 2012; McCann and Ward 2012; Prince 2017) the literature on agri-environmental governance and PES has remained somewhat constrained by meta-narratives of neoliberalism, in which variation is understood as forms of hybridization (Higgins et al. 2014a). The PES literature in particular has focused-in on the extent to which schemes adhere to market blueprints as a desired endpoint, although questions regarding the utility of such imaginaries are now being asked given the continued failure to achieve ‘pure’ markets (Muradian et al. 2013; McElwee et al. 2014).

Notions of institutional blending (Hodge and Adams 2012) have been suggested to replace the imprecision of ‘hybridization’. Specifically, Hodge and Adams argue that:

*“...projects blur the boundaries between state, private owners and civil society. This blurring is increasingly characteristic of some forms of neoliberalisation. Yet that concept is too broad and crude, to capture the subtleties of the changes taking place.”*  
(2012, 476)

*“[...there has been] a failure to unpick the different and often contradictory processes that are bundled up....”* (ibid, 474)

Their efforts to set out a different imaginary are particularly informed by the UK context, where NGO’s have taken an increasingly prominent role in new modalities of rural governance. This has happened in conjunction with a broader diversification of stakeholders that resonates with the scenarios we have encountered in Wales. Their conception of institutional blending seeks to offer finer purchase on a *“complex mix of formal legal provisions, separation of property rights, design and provision of external incentives and forms of partnerships between actors”* (ibid, 477), whilst avoiding automatic recourse to the normative inference of neoliberal analytics. It also seeks to describe *“solutions worked out on*

*the ground by a wider range of social actors*” (ibid) which connects to our concern with the trajectory and intentionality of policy developments.

Unpicking the ways in which PES has been made to work by crafting together different institutional forms and tools, is a theme similarly tackled by Higgins et al. (2014b) as a means to advance readings of hybridity (see also Fletcher and Breitling 2012; McElwee 2012; McElwee et al. 2014; Potter and Wolf 2014). Higgins et al. (2014b) contend that the identification of hybridity is not enough if we don’t understand why the different components and adaptations are necessary. Their account of PES development in Queensland Australia offers an assessment of how different governance approaches have succeeded one another and the failures tackled in each re-iteration, showing how different forms and tools meet specific stakeholder needs.

Yet their reading also leaves unresolved questions about the levels of rationality and pre-intention that can be ascribed to the actors concerned, which a more continuous form of ethnographic research engagement could better address. Their narrative, although highly detailed, is somewhat sanitised of the struggle and unexpected emergences that are revealed in assemblage readings of policy transitions. Similarly, we contend that Hodge and Adams’ (2012) analysis could be enriched through application of an assemblage lens by enabling a clearer appreciation of how the different institutional forms inter-relate as part of a broader process of negotiation and experimentation to draw out connecting (f)actors, and temporal references, in the production and realignment of the different projects. Overall, we argue that PES scholarship would be enriched by a more explicit focus on the policy *mobilities* involved to augment analyses of the forms taken.

The assemblage literature offers key tools to advance these aspirations, but it is diverse - inspired by theorists including Deleuze, Delanda, Latour and Foucault (Woods et al. 2015).



Clarity in the terms of reference and epistemological parameters employed is therefore important. For our analysis we draw on the work of Tanya Murray Li (2006), who advances a Foucauldian-inspired approach, to uncover and explore the processes and rationalities of State-craft. Rather than addressing the *resultant* governance formation as a settled or complete entity, Li directs us towards their contingency as “*elements are drawn together at a particular conjuncture only to disperse or realign...*” (2007, 265) and “*the hard work required to draw heterogeneous elements together*” (ibid). As such, we are encouraged to attend to the diversity of agendas and priorities that could be written-out if we only consider specific moments of stabilisation within the ongoing processes of policy production and reformation. To apply this reading, Li sets out six practices of assemblage (see Box 1):

<i>Forging alignments</i>	Building alliances and compromises between different governance actors
<i>Rendering technical</i>	Devising mechanisms through which complex issues can be simplified to work within a universal schema, enabling the measurement of outcomes
<i>Authorising knowledge</i>	Endorsing a specific, often technical and elite, body of knowledge that is conducive to the assemblage
<i>Managing failures</i>	Masking fundamental weaknesses through new adjustments, devising compromises
<i>Anti-politics</i>	De-limiting debate about how and what to govern and the effects of particular arrangements
<i>Reassembling</i>	Reworking failures; deploying existing discourses to new ends

#### Box 1: Practices of Assemblage (paraphrased from Li 2006, 265)

Whilst not intended as a strict method of ordering and explanation, these practises offer a useful heuristic to trace and position the messy policy emergences we are seeking to make sense of. It is an approach that lends itself to the analysis of micro-processes and the diversity of influences, as well as the unexpected and incoherent outcomes that are subsequently smoothed-over. It allows us to see politics and governing as fundamentally disordered and fraught; an ongoing challenge that is too often streamlined in official and academic narratives to produce neat linear trajectories of change and control (Li 2006; Rose 1999). Applying an assemblage reading is, therefore, a means to better understand why and how things change in a particular way; to appreciate the sheer difficulty of arriving at constructive results and the persistent need to re-assemble, but also to attend to the frictions of different contexts, noting what persists under new (dis)guise. As such, we use Li's (2006) methods as a means to understand how multiple - and not necessarily coherent - incarnations of PES have been produced to work alongside each other and how this label continues to be asserted as a form of legitimisation to authorise very different assemblages and the aspirations associated.

#### **Case analysis**

To demonstrate the processes involved in assembling PES in Wales, we follow a broadly historical sequence in the narrative presented, although transformations in pan-Wales agri-environment schemes are discussed first before moving to consider two place-based initiatives. In reality, these arenas for PES development operated in parallel and have now coalesced somewhat. Discussions of place-based initiatives are limited to two cases, the 'Pumlumon Project' in Mid-Wales and the 'Ecosystem Enterprise Partnership - Ecobank' Project in Pembrokeshire, South-Wales (See Figure 1).

<FIGURE 1 HERE>

Figure 1: Map of Wales showing the two project locations. Source: adapted from Wikimedia Commons, not to scale.

The discussion here is informed by formal interviews, ethnography and documentary research undertaken over the last ten years. This has included interviews and observations with government staff and actors associated with the projects outlined, along with analysis of policy and project documentation, government scheme application and operational instructions, Ministerial statements and press material.

### **Transforming Agri-Environment Schemes**

Within Wales, interest in ‘payments for ecosystem services’ first appeared in 2008 as part of reforms to agri-environmental schemes operating under the Common Agricultural Policy [CAP]. Adoption of the PES discourse was in response to critiques about the effectiveness of pre-existing schemes and questions surrounding the continued legitimacy of farm supports more broadly. This was particularly from environmental lobby groups who demanded clearer public benefits from payments to farmers, but also from civil servants concerned about the degree of dependency within the farming sector upon decreasing CAP payments (WG 1<sup>1</sup> interview April 2016). Simultaneously, the Welsh Government [WG] sought to address public and European legislative pressures for widening environmental responsibilities, including concerns around climate and water governance (WG 2009). At this time, the language of ‘ecosystem services’ was becoming popularised, following the 2005 Millennium Ecosystem Assessment and the potential of a more ‘results based’ model of agri-environmental payments was being explored (see Burton and Schwarz 2013).

Despite a step-change in rationale, the resulting scheme, known as ‘*Glastir*’, was not markedly different from its predecessors. Whilst the language had changed to authorise the terminology of ‘ecosystem services’, the broad mechanisms and basis of payments had not (Wynne-Jones 2013a). Rather than a radical rupture from previous approaches, a more gradual process of *forging alignments* between diverging interest groups was evident. Opposing pressures for substantive reform, Ministerial favouring of farming interests ensured that an entry-level scheme was available to a broad cross-section of farmers, countering concerns that targeting environmental outcomes would be done at the expense of maintaining socio-economic benefits across the sector (WG 2 pers. comm. May 2016). Traversing the growing divide between farming and environmental interests, support for reframing farmers as more entrepreneurial and self-regulating subjects was aligned with desires for increased accountability in public spending. However, not all aspects of this compromise suited the different actors, with farming representatives wanting more autonomy but expressing concerns about the risks of more variable and contingent payment methods (Farmers Union interview October 2010). Environmentalists and civil servants, by contrast, had previously sought to intervene in farmers’ control over land management rather than granting more self-direction, but they did want to make environmental payments more conditional.

These areas of overlap formed a space for *alignment* through which reforms could proceed. In the very act of constructing new terms of debate around the delivery of ecosystem services, diverse conflicts were being *rendered technical* and disassociated with previous argumentation. Another key method for rationalising diverging opinions was through the production of targeting maps, where different priorities could be accounted for in GIS layers. These were produced through a public consultation resulting in 130 maps, which were subsequently refined to provide the data and strategy for an ‘advanced’ level scheme

superseding the earlier ‘entry level’ model.<sup>2</sup> Despite the process of open consultation, critics contend that the maps authorize particular sets of knowledge while inevitably excluding others who do not have the capacity to relay information in the necessary format (Farmer 1 interview April 2016).

Defusing the ongoing dissensus that continued to emerge through these developments was not easy and instances of *failure* continued to have to be *managed*. Sometimes these were overtly political (as we outline below) and sometimes more arbitrary in their nature. For example, whilst all parties expressed enthusiasm for a more responsive output-based approach to paying for ecosystem services, this was curtailed by European Commission regulations on the basis of payments which tied costing to the income foregone by not undertaking production activities (Wynne-Jones et al. 2013). In light of this impasse, civil servants suggested that there was little expectation of ‘proper PES schemes’ emerging through the vehicle of CAP payments (WG 1 interview August 2011; WG 2 pers. comm. October 2013). Instead, agri-environment payments were envisaged to work alongside other measures which could incorporate private finance and were not subject to the same regulatory restrictions. Hence new avenues have been *reassembled*, responding to the barriers and opportunities emerging.

Taking this forward, announcements were made that private money was being sought to supplement government funding (Davies 2013a). Critically, this was also presented as a means to counter shortfalls in public-finance, which were increasingly being emphasised as EU budgets tightened:

*“The Welsh Government is considering all possible funding streams for developing a more sustainable and robust land management. At a time of budgetary constraint WG is keen to explore the possibilities of attracting private funding to buy ecosystems services provided by land from the landowners.” (WG 2013a, 1)*

Here it is evident that a desire to prepare farmers for a future of decreasing public monies was becoming a dominant factor in these ongoing reforms, reinforcing earlier discourses of accountability in public spending and the changing role of farmers: *“Going forward, we know we need less reliance on subsidy payments and more focus on business and profitability.”* (Davies 2013b).

In terms of continued efforts towards *alignment*, and the *anti-politics* evident within actions to *reassemble*, what is notable here is the marrying of an impetus to cut public spending, which has an immediate detrimental impact upon the farming sector, with positive rhetoric around how this will ultimately improve and sustain their businesses. For example: *“One of the drivers for PES is to broaden the incomes for farms...to make them more resilient.”* (WG 2 interview March 2016).

However, despite efforts to sweeten the message and evidence of genuine sympathies from some civil servants, much of the rhetoric advanced did not appeal to farmers. In particular, farmers contested the perceived over-emphasis upon environmental concerns and insufficient coherence with their cultural identification as food producers (Wynne-Jones 2013b; Farmer 1 interview April 2016); highlighting persisting contradictions underlying the *failures* witnessed. Consequently, many rejected the government scheme reinforcing a need to *reassemble*.<sup>3</sup>

To do this WG offered seed-funding to support PES pilot-projects, firstly through the ‘Nature Fund’ (WG 2013b) and subsequently through the Sustainable Management Scheme (SMS), which is now a formal component of the 2014-20 Rural Development Programme. This has enabled them to reach-out to a variety of non-state actors prioritising: “...*action to further develop the interest in payment for ecosystem services...increase[ing] the potential for alternative incomes...*” (Davies 2013c)

Public statements<sup>4</sup> reveal a clear emphasis on collaboration and learning from ‘bottom-up’ approaches, with acknowledgement that the necessary knowledge and stimulus for successful arrangements is not always forthcoming from government staff. This de-centring of expertise is similarly affirmed in the scoring criteria for SMS applications which require strong local embeddedness and tailoring (WG 2016b). However, this is not seen to simply equate with a devolvement of government control, as central resources have been allocated to cover the staffing and administration costs to catalogue and facilitate emerging projects, including the introduction of a PES practitioners group in 2015.<sup>5</sup>

Neither should these developments be viewed simply as a victory for farming interests, as the removal of government funding for the ‘entry level’ Glastir scheme from 2017 has meant the withdrawal of widespread benefits in favour of more environmentally-focused targeting.<sup>6</sup> In addition, the process for application to the ‘advanced’ scheme now involves further levels of expertise and competition, which some interviewees felt placed it beyond the reach of ‘normal’ farmers (Farmer 1 interview April 2016). Applicants to the SMS have made similar accusations, demonstrating ongoing struggles over the agreed purpose of these funds (Farmer 2 interview January 2017).

Considering the longer term, WG 2 outlined a vision of a ‘mosaic approach’ whereby bottom-up collaborations can draw in diverse (non-public) finances to address both local (e.g. water quality) and international (e.g. carbon sequestration) concerns, but with a continued need for State funding to “*fill in the gaps*” (WG 2 interview March 2016). Moreover, in recent public presentations WG representatives outline that *‘private sector funding is not viewed as a golden bullet’*<sup>4</sup> reflecting growing awareness of the challenges associated with drawing in private interests and ensuring sufficient levels of revenue from such sources.

Collaborations resulting from the Nature Fund and SMS have been diverse, often articulating strongly place-based aspirations (WG 2016a). These exhibit similarities in the approach and framings used, but multiple articulations of PES are being produced, and in many instances applied to scenarios which do not exhibit clear criteria for such nomenclature (c.f. Boisvert et al. 2013). Yet, the reference continues to be popularised as an authorising label as we go on to examine in the following section.

### **The Pumlumon Project**

The Pumlumon Project was one of the first PES schemes in Wales, beginning in 2006, led by Montgomeryshire Wildlife Trust [MWT], with an aspiration to “*enhance the natural capital of the project area to allow production of traditional farm produce coupled with new ecosystem services that will provide the local community with a sustainable economic future*” (MWT 2008, p5). As such, it aimed to provide a new avenue for rural development in the remote and chronically marginalised upland area of Mid-Wales. Here, the assemblage-work of *forging alignments* between the conservation and farming sector was evident at the outset.



Echoing wider discourses at play in the Glastir policy forums, PES was framed as a better mechanism for incentivising farmers, granting them the autonomy to deliver outcomes applying their local knowledge rather than following prescriptions (MWT interview September 2007). This seemed to reflect a genuine empathy, in marked contrast with the position of other conservationists and civil servants at the time who were using PES as an implicitly *technical* move to depoliticise persisting conflicts around the future of farming and upland land-use (Wynne-Jones 2012).

The payment mechanisms used were variable, drawing on charitable funding to pay for interventions on their own reserves as well as working with private landowners. In addition, they sought government funds wherever appropriate (e.g. Glastir). As such, MWT took a coordinating and brokering role, approaching farmers to pitch a range of desirable options and undertaking the administrative work of attracting funding - suggesting frictions in the reshaping of farmers as more proactive subjects (c.f. Higgins et al. 2014b). Private investment was also sought to offer freedom from the increasing insecurity and bureaucracy associated with public and third sector funding.

Securing funding involved *authorising knowledge* to legitimise the ecosystem service approach, which required the application of new scientific and policy expertise to name, delimit and measure desirable functions and outputs that could be captured within the project area. Links with wider policy programmes, including UK-wide ‘PES Pilots’ and the ‘Ecosystem Knowledge Network’<sup>7</sup>, were highlighted to provide official labels through which the project could be identified and benchmarked to reassure interested stakeholders. Similarly, connections to emerging platforms for carbon credit markets, including the

Peatland Code<sup>8</sup>, were developed to show the credibility and comparability of the work they were undertaking.<sup>9</sup>

Quantitative measurement was key in these processes of authorisation, in terms of determining the area of land under management, amounts of work undertaken, outputs delivered (e.g. carbon sequestered) and cost effectiveness ('return on investment'). Equally, comparison to the approach of schemes elsewhere was made to provide confidence in a 'tried and tested' concept despite asserting a distinctly local orientation (MWT no date).

Despite much recognition of the project, work to-date has wholly been funded through charitable and public sector sources (MWT 2014 p18-9), and direct market payments have not been realised. To elaborate, investment from insurance brokers was sought to connect upland land-use with the mitigation of downstream flooding (MWT no date p8-9). However, discussions with the Association of British Insurers in 2011 revealed a lack of confidence in the efficacy of such proposals; reflecting the complexity of catchment hydrology and the difficulties controlling and isolating specific functions.

Water companies were also approached to explore payments for water quality. This was championed due to the perceived simplicity of attaching a value to upstream land management, as the cost-avoided of downstream treatment. These mechanisms have been granted support by the regulatory body OFWAT, who have permitted a levy to be placed on water bills to fund catchment management. Nonetheless, Dwr Cymru (Welsh Water) have been unwilling to participate in the upland regions of Mid-Wales because water here is cleaner than in other areas where companies have entered into partnerships, and so there is no demand as yet (WG 2 pers. comm. October 2013).

Consequently, whilst the Pumlumon Project had attracted £2.3 million of funding by 2014, concerns have been raised about the future sustainability of their financing mechanisms. Future priorities therefore include linkages to ‘offsetting’ markets; monies from ‘corporate social responsibility’; and lobbying for an ‘ecosystem service premium’ on utilities and insurance payments (MWT 2014, 4-6). Yet, it is equally acknowledged that *“the challenge may be one of re-directing and re-naming sources of existing funding, rather than of creating entirely new and additional sources of funding”* (ibid p4) - pre-empting some of the Welsh Government’s more recent statements, which acknowledge a more multi-stakeholder and multi-layered approach and perhaps indicating a new strategy in their efforts to *reassemble* the project going forwards.

Despite the sense that WG have now embraced a more plural vision, discussions with WG’s lead for PES in 2013 demonstrated a shift in their attentions as they realised that drawing funding into such remote upland locations was continuing to prove challenging. As a result new assemblages started to gather interest elsewhere (pers. comm. October 2013).

### **Ecosystem Enterprise Partnership - Ecobank [EEP-Ecobank]**

We witnessed a realignment of WG’s PES agenda with lowland farming interests and the more developed coastal region of Pembrokeshire in South-West Wales where opportunities for private sector investment looked more promising. Here diffuse pollution from intensifying dairy production was threatening water quality (in contrast to the scenario above) and limiting development due to the lack of compliance with the EU’s Water Framework Directive and targets for the Pembrokeshire Marine Special Area of Conservation. Local waterways were *“considered as ‘full’ with no headroom...for additional [nutrient or*

*sediment] loading”* (EEP-Ecobank 2015, 30). Consequently, proposed developments causing further nutrient discharge were being vetoed by the statutory environmental body Natural Resources Wales [NRW].

Tackling these issues, regulatory approaches were seen to be ideologically unattractive but also ineffective at lowering pollutant levels even if they could stop further increases. Equally, these issues were poorly targeted in the design of agri-environment schemes (up until Glastir) (PCF interview May 2016). To address the persisting problem this posed, the EPP-Ecobank was initiated by WG and NRW in 2015, inspired by the success story of *First Milk*, a farmer cooperative operating in the area. *First Milk* secured a permit for a new effluent plant in 2014, by committing to offset the additional nutrient load through nutrient management plans on some of their supplying farms.<sup>10</sup> NRW staff were then inspired to scale up the approach (PCF interview May 2016). Supported by WG’s Nature Fund, a community interest company *Pembrokeshire Coastal Forum [PCF]* sought to assemble:

*“a partnership framework between land managers, industry, commerce, government and third sector working collaboratively to develop and pilot an Ecobank – a nutrient offsetting scheme for the Milford Haven and Cleddau catchment.”* (EEP-Ecobank no date)

This attracted considerable interest from a large number of stakeholders, including private sector actors (see Box 2), explaining WG’s initial excitement about the project.

Milford Haven energy port;  
RWE energy company;  
Dwr Cymru;  
Welsh Government;  
Natural Resources Wales;  
Pembrokeshire Coast National Park Authority;  
Pembrokeshire County Council  
Pembrokeshire Local Action Network for Enterprise and Development [PLANED]

Box 2: EEP-Ecobank Stakeholders

Framing a potential solution to an intractable problem in the terms of PES had an important *authorising* effect. Competing interests were being *rendered technical*, and accordingly depoliticised by their negotiation through a market forum. Nevertheless, multiple potentially conflicting priorities are evident amongst the partner grouping and worrying exclusions became apparent. Notably, not a single farmer representative was directly involved, even though agriculture accounts for about 95% of the local nitrate loading (EEP-Ecobank 2015: 47) and the *First Milk* exemplar was wholly dependent upon farmer participation. Farmers were only indirectly represented through *PLANED*. This was justified on the grounds of practicability due to the tight time schedule during the early stages of project inception (PCF interview May 2016).

In order to *render technical* pollution rights, possible nutrient trading structures were explored through a feasibility study (undertaken by external consultants) which reviewed a range of other ecosystem banking initiatives, including reverse auctions and brokering arrangements (EEP-Ecobank 2015). Interestingly, the consultants concluded that regulatory

efforts could help to address the nutrient problem, even though a PES approach was prioritised by stakeholders:

*“Whilst an innovative approach, utilising the market wherever possible, demonstrates leadership...more traditional methods of reducing loading may actually be the best approach... The EEP should not be averse to combining approaches wherever possible.”* (EEP-Ecobank 2015, 91)

Similarly, it is notable that the initial approach of nutrient management planning, used by *First Milk*, is equally relevant within a regulatory framework. Consequently, some commentators have argued that the PES label is being forced in such arrangements and does not accurately reflect the relations and incentives in place – a point that was not disputed by WG representatives<sup>11</sup> - but the allure and *authorising* qualities of this nomenclature explain its awkward application.

The feasibility study also highlighted a need for ‘scientific robustness’ behind management interventions, prompting reference to lists from UK Government scientists to ensure the credibility and measurability of techniques adopted. But some difficulties have been encountered here, in terms of how measures relate to meaningful action. Specifically, excess nitrates have been singled out as the key pollutants to be addressed, whereas concerns around phosphates and sediment have been put on hold, purportedly due to the more complicated nature of measuring and monitoring them (WG 2 interview March 2016; PCF interview May 2016). Yet recent scientific studies have placed such rationales in question, showing potential complications with nitrates also (Van Meter et al. 2016). Tensions are exposed here surrounding the level of precision and forms of authority required to achieve acceptable

forms of commodification (Robertson 2012). Outputs have to be clear enough to provide confidence to investors and appease regulatory interests, but there is also pressure to arrive at ‘practical solutions’ on which all partners can agree. Hence a compromise is met between advancing levels of technicality to ensure accuracy and the adequate levels of information required to move forward. For the Ecobank it is not yet clear where this balance lies.

These potential *failures* continue to be *managed* in ongoing discussions and data gathering that are now being orchestrated in a follow-on project phase funded through the SMS. Further failures yet to be resolved are also apparent in the lack of financial contributions from other stakeholders beyond government, despite early assumptions that the Ecobank was more attractive to private interests. This prompted the Ecobank coordinators to pitch the project idea to the European Investment Bank in Luxembourg to obtain seed funding to pay for a brokering organisation and trial trading (WG 2 interview March 2016).

The scope for the government itself to contribute is limited due to overall budget constraints and the restrictions on double funding.<sup>12</sup> Nevertheless, WG is clearly willing to assist wherever it can; further confirming their eagerness to remain in a steering position while at the same time devolving governance responsibilities. Moreover, this case demonstrates that government involvement continues to be required to establish trust in potential PES markets and to attract financial and institutional buy-in.

## **Discussion and Conclusions**

From the empirical analysis, we see that PES is now evident as a mosaic of arrangements - including different actors, mechanisms and modes of relation. These operate over different

scales, sometimes to govern discrete areas of territory (i.e. multiple modalities within one space including a farm or ‘project’ area), sometimes addressing different geographical units (i.e. differences in what the national Glastir schemes seek to govern and the objectives of a ‘local’ e.g. catchment-based project). They also incorporate different scalar connections, linking place-based actions to national or international concerns (e.g. biodiversity and carbon), as well as including more direct actor to actor relationships (e.g. water companies and farmers). There is no unified objective in terms of the preferred approach and scalar focus, but a greater acceptance that different initiatives can achieve diverse ends. This differs from earlier readings where we see more uniform transitions to implement mechanisms across a national or regional territory (Higgins et al. 2014b; McElwee 2012; Wynne-Jones 2013a).

Appropriate mechanisms are worked out in place, depending on the opportunities and problems in question. PES is not advanced as a pre-formed and fixed template, but provides a container to explore possibilities. Whilst there *is* a sense of striving towards ‘properly functioning markets’, with a favouring of private capital, there is also space and freedom to explore workable (i.e. acceptable and adequate) methods whatever they involve (Robertson 2012). Critically, these all sit together under the umbrella term of PES despite the diversity in their form (Boisvert et al. 2013). PES is powerful in its authorising capacity (Rodríguez-de-Francisco et al. 2015) but does not necessitate specific transformations or indeed homogeneity.

Linked to this, we see that PES is not just about ecosystem services. It is used to address a range of different concerns, offering a new opening and stage on which to negotiate longstanding issues (Potter and Wolf 2014; Wolf 2014). These include: environmental



degradation (to serve local, national and global objectives); conflicts over land-use; managing public spending cuts; reducing subsidy dependence within farming; chronic rural development needs; and obstacles to future economic growth. Consequently, a variety of actors have become involved, working opportunistically to use PES as a vehicle to advance their own causes (c.f. Van Hecken et al. 2015). This has necessitated considered efforts to align diverse rationales to serve similar ends. Observing the oscillations and reformulation involved, it is impossible to frame PES as a coherent and strategic vision heading towards an optimal endpoint. PES is not simply a global agenda that has been ‘parachuted in’ or ‘rolled-out’.

Aligning with Van Hecken et al.’s (2015) call for a ‘power-sensitive and socially-informed analysis of PES’, we have considered how these different interests are served, noting what is squeezed out and elided through the failures and reassembling undergone.

*“Understanding how PES is shaped, resisted, reworked and adapted locally essentially boils down to analysing who is able to frame the problems and set the rules, how they do so and to what end, and why it is possible for them to do so.” (ibid: 123)*

PES empowers, aligns and depoliticizes, but not always successfully and not evenly. We have seen clear gains amongst environmental NGO’s and civil society organisations, due to their specialised environmental knowledge, tools of measure and networking capacities. But this also creates new dependencies where farmers are beholden to brokers and ‘experts’ to legitimise their actions and connect to sources of financial capital. The aspiration for PES to provide greater autonomy for farmers has not yet being realised. Moreover, we have witnessed a narrowing of the criteria determining which farmers can participate (e.g. on a target map, or

possessing appropriate social connections). This suggests that past deference to the farming unions in policy making forums (Wynne-Jones 2013a) has successively been destabilised through the discrete politics of technical foreclosure.

Tensions of geographical marginalisation are equally important to note, given the difficulties witnessed in supporting PES in ‘deep rural’ locales, despite the proliferation of energies directed at this cause. To be clear, rural spaces and actors are not simply receiving and being remoulded by PES, it is being used and initiated by them and they in turn are affecting the wider circulations of PES discourse (Wynne-Jones 2012; c.f. Woods et al. 2015). However, long standing issues of marginalisation have not been fully remediated. Identifying and *isolating* potential buyers is as fraught as the commodification processes required to alienate desirable goods for sale. This is precisely why we have ‘adequate’ hybrid measures, incorporating proxies and proxy buyers, and should not be read to indicate that we need better or more complete commodification. Rather, the critical parameter is reaching enough political will and trust for action (Robertson 2012; Potter and Wolf 2014). Comparative work using the assemblage approach allows us to better see this; to acknowledge the accommodations in place and how different actors are able to set the rules determining these.

Equally, by attending to moments of failure, we contend that an assemblage approach enables us to bear witness to tensions and fractures (i.e. the changes of tactic and reactions to rejections), which could easily be elided losing much of the explanatory insight into why PES is meeting with difficulties. Moreover, even when successful dialogue is achieved, full alignment of agendas is not so seamless - threatening to undermine coalitions and stabilisations into the future. In particular, the aspiration to reshape farmers as more independent and responsive subjects has managed to combine disparate interests up to a point. But the politics

of subsidy reform has persisted as a trenchant issue (even – and perhaps more so – in the face of Brexit), which cannot simply be removed by an exercise of recoding.

Addressing questions of politics and power, we also need to consider the implications for our understanding of the State. Whilst the emerging mosaic of PES can appear chaotic, government has still set the terms of engagement. The SMS is used to create a wider forum, which suggests opportunity and openness, but still delimits. This is a masterful work of consensus building and anti-politics; demands for greater local responsiveness and appropriateness are delivered whilst also ensuring engagement and co-operation from and between actors. The State having failed to directly manage these tensions previously has stepped back whilst appearing to concede the need for other actors' skills and knowledge.

Whilst there is more room for manoeuvre in terms of deciding which ecosystem services will be governed, where, and precise modalities to be employed, a set framework is still laid out with scoring on the basis of prescribed criteria (WG 2016b). This is a fascinating step in the crafting of governmentality given the inherent demand for innovation (c.f. Bulkeley and Broto 2013), the ability to set one's own mode of self-government, and the data harvesting inherent (through requisite monitoring by scheme applicants). As with other recent moves in the advance of PES (such as the Glastir maps and PES practitioner group) WG seeks to gain control and oversight whilst giving power. Although it would be naive not to acknowledge the pressures of budget cuts within this move, recent discussions also assert the additional costs of developing such locally adapted mechanisms (WG1 pers. comm. March 2017). Hence, we suggest that this strategy responds as much to the complexity of problems now in hand, leading to a need for greater co-production.

Through this chapter we have sought to enrich existing evaluations of PES, by attending to the temporalities and mobilities that produce geographical difference. We have also sought to show the hard work and compromise involved, which takes us away from damning judgement of PES as a neoliberal project towards a more cautious engagement, which highlights questions of justice and exclusion, but also acknowledges the sincere ambitions many actors have and the frictions they encounter. Whilst our reading indicates much promise in the assemblage approach, it is clear that it can be refined and extended by both a more expanded focus (to follow connections to wider PES assemblages) and a more in-depth one than has been possible in the space of this chapter. It is also important to acknowledge our own roles as academics, not only in terms of the power of ‘PES science’, but more broadly in a range of articulations where we authorise and accentuate the proliferation of PES as a unified category. Otherwise, there is a danger that the depth and sophistication of the assemblage reading remains detached from more everyday expressions which can reproduce simplistic framings and prevents productive learning within the ongoing assemblages that we work with.

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<sup>1</sup> WG1 and 2 refer to interviews with civil servants with responsibilities for agri-environment governance and PES development (job titles changed over time).

<sup>2</sup> The maps currently informing the targeting of the Glastir Advanced Scheme can be found here: <http://gov.wales/topics/environmentcountryside/farmingandcountryside/farming/schemes/glastir/glastir-advanced/2016-glastir-score-maps/?lang=en>.

<sup>3</sup> See <http://www.walesonline.co.uk/news/wales-news/glastir-millions-pounds-could-be-returned-2025293>.

<sup>4</sup> Specifically presentations by WG’s Head of Agricultural Strategy and Policy Unit at a ‘Future of Farming in the Uplands’ event (14.03.2017).

<sup>5</sup> See <http://gov.wales/topics/environmentcountryside/consmanagement/payments-for-ecosystems-projects/?lang=en>

<sup>6</sup> See <http://www.walesonline.co.uk/business/farming/farmers-unions-accuse-welsh-government-10879528>

<sup>7</sup> <http://ecosystemsknowledge.net/resources/programmes/pes-pilots/pumlumon>

<sup>8</sup> <http://www.iucn-uk-peatlandprogramme.org/projects/pumlumon-project>

<sup>9</sup> See [http://www.iucn-uk-peatlandprogramme.org/sites/www.iucn-uk-peatlandprogramme.org/files/Pum\\_brochure.pdf](http://www.iucn-uk-peatlandprogramme.org/sites/www.iucn-uk-peatlandprogramme.org/files/Pum_brochure.pdf).

<sup>10</sup> This did not involve financial compensations, simply the technical exercise of demonstrating nutrient savings.

<sup>11</sup> This was raised in a PES workshop on 30.04.2015:

[http://www3.imperial.ac.uk/newsandeventspggrp/imperialcollege/lifesciences/grandchallengesinecosystemsandtheenvironment/eventsummary/event\\_9-4-2015-14-45-14](http://www3.imperial.ac.uk/newsandeventspggrp/imperialcollege/lifesciences/grandchallengesinecosystemsandtheenvironment/eventsummary/event_9-4-2015-14-45-14)

<sup>12</sup> WG could not fund farmers to address nutrient management through Glastir and pay them again through other RDP measures.